

Groundbreaking solution for global connectivity

EllaLink



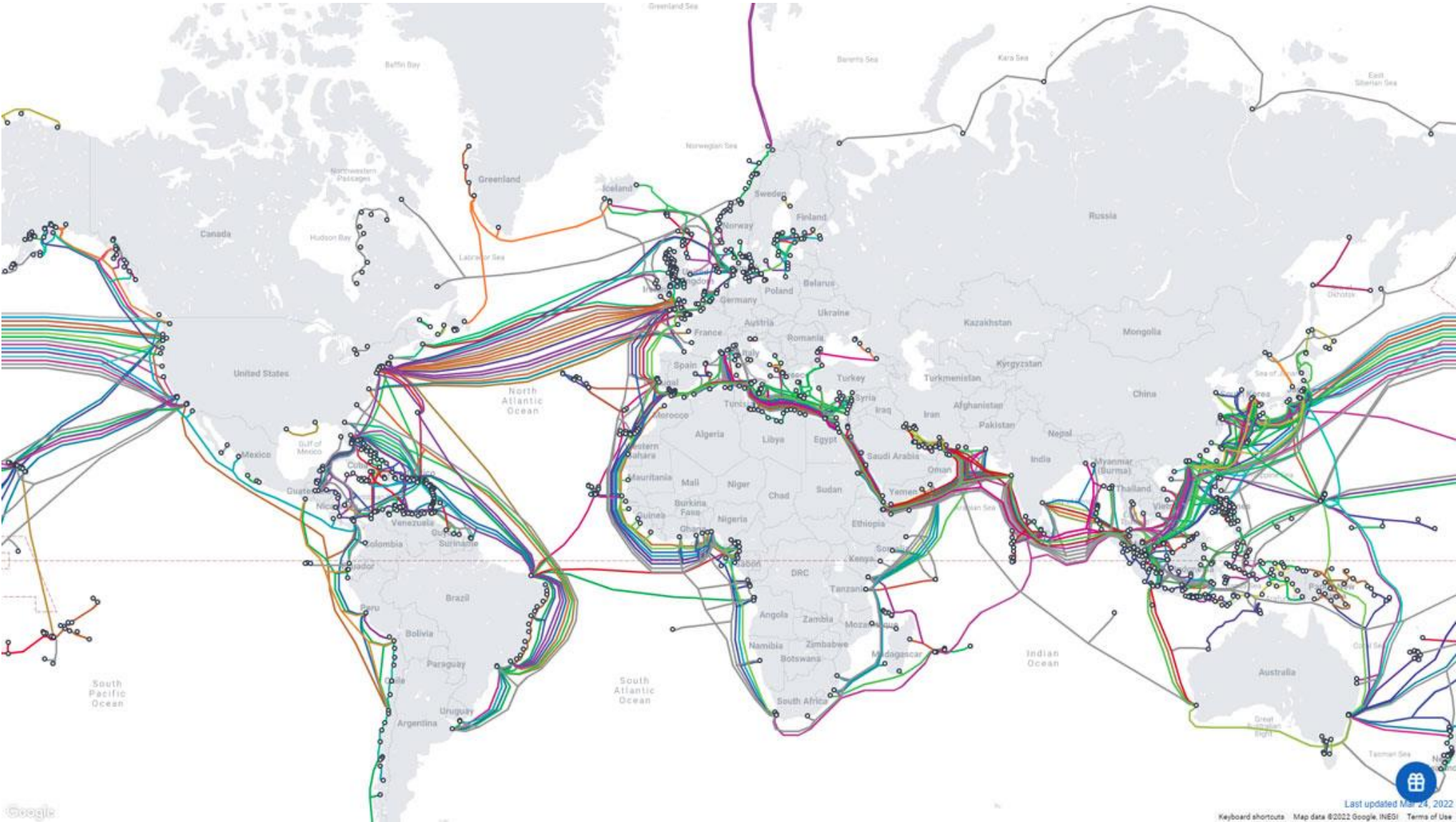
Rafael Lozano
Brazil Country Manager

2024 | Private & Confidential



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Google

Last updated Mar 24, 2022
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A world map with a dark blue background, overlaid with a complex network of colorful lines representing undersea cables. The lines are concentrated in the Atlantic and Indian Oceans, connecting major landmasses. The map is semi-transparent, allowing the text to be clearly visible.

They transmit 99% of all international data

They are laid on the seabed and up to 8,000m and have a design life of 25 years

There are today 436 undersea active cables in service spanning over 1.3 million Km

The cables are usually between 17 and 40mm diameter and contain up to 48 fibres

The longest cable is Sea-Mea-Wee 3, landing in 39 times from Germany to Korea and spanning 38,624 km

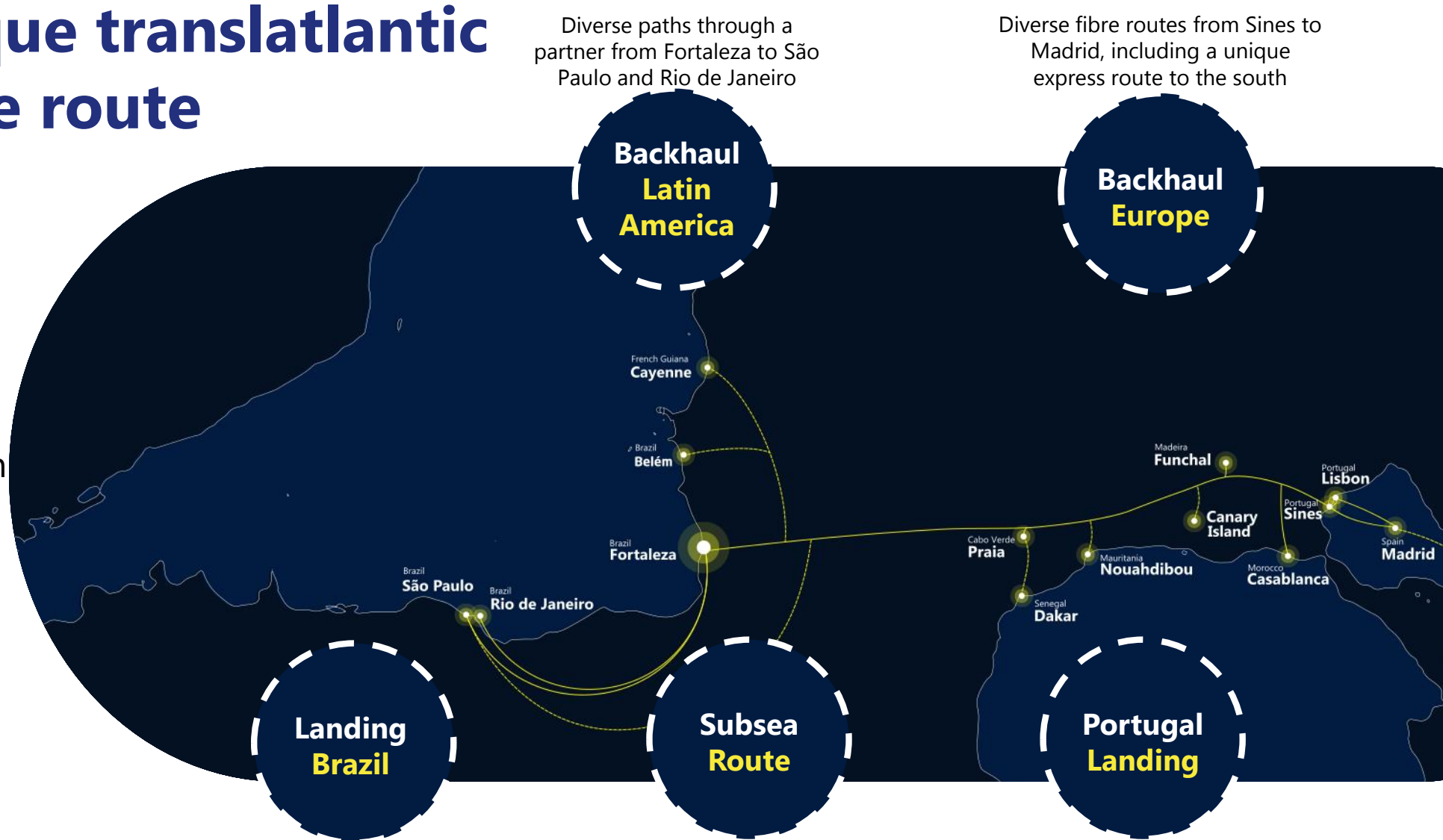
EllaLink brings continents closer

EllaLink route challenges our perception of the world due to predefined Mercator projection representations.



A unique transatlantic diverse route

The EllaLink infrastructure provides a **diverse** solution for each **aspect of the network** from data centres to data centres



Diverse paths through a partner from Fortaleza to São Paulo and Rio de Janeiro

Diverse fibre routes from Sines to Madrid, including a unique express route to the south

Optimized landing in Fortaleza avoiding cable crossings with a new dedicated BMH

Unique routing as the first high-capacity cable directly connecting Europe with Latin America

Diverse and robust southern landing point from the traditional congested landing points



SECURE

Direct access between Europe and Latin America reinforcing data privacy.



FAST

Up to 50% latency reduction between Latin America and Europe with direct City-to-City connectivity.



DIVERSE

Geographical diversity from existing submarine infrastructure.



OPEN

Carrier Neutral and Open Access operator.



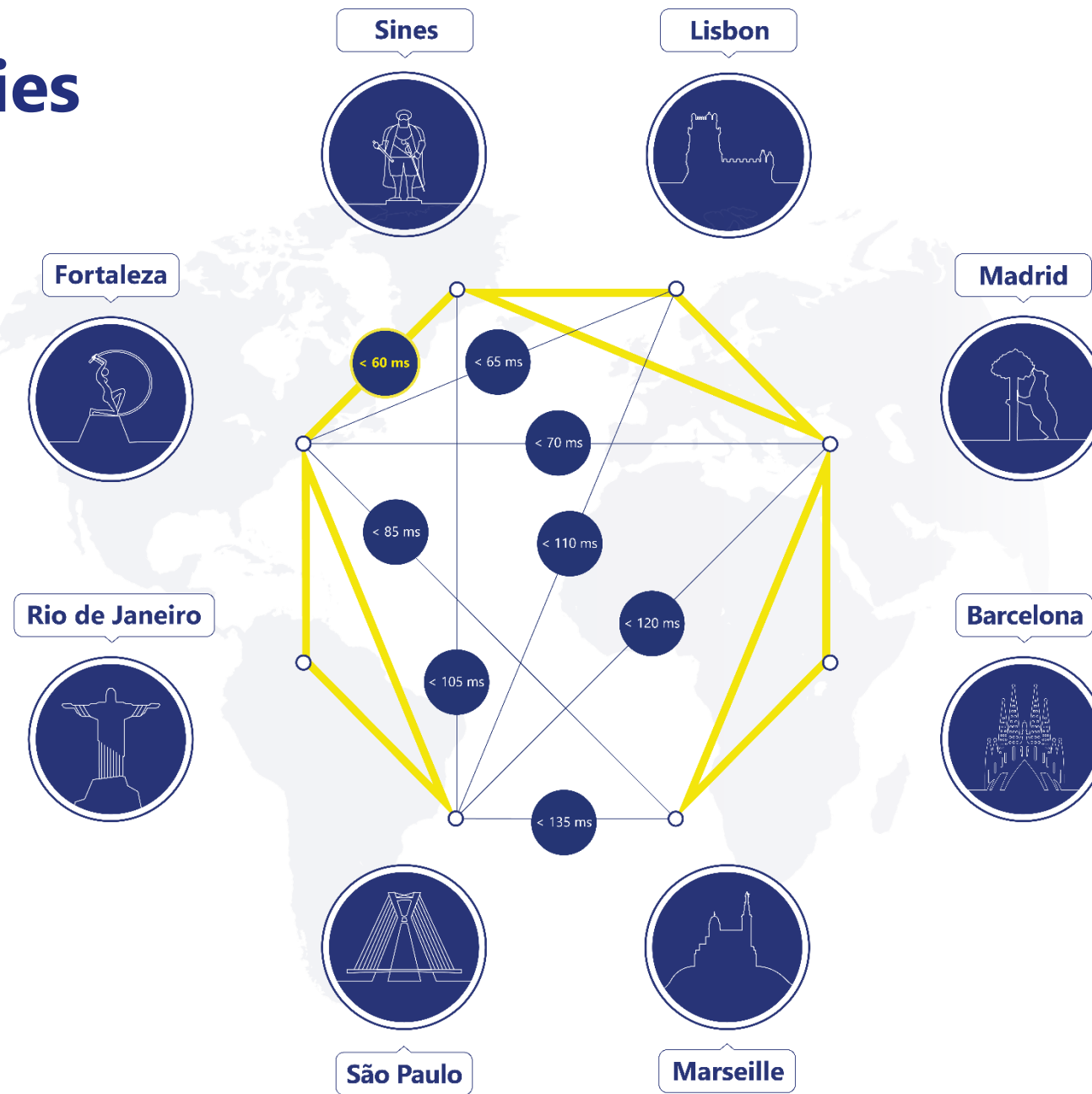
WINNER OF THE GLOBAL CARRIER AWARDS
« SUBSEA PROJECT OF THE YEAR »



European
Broadband
Awards
2022

Optimizing Latencies

A **unique** diverse geographical route bringing up to **50% latency reduction** between Latin America and Europe with direct City-to-City connectivity



Cities
connected

12

7

Branching
units

Portugal
to Brazil

<60
ms

Cities
connected

<135
ms

Capacity design
per FP

25
Tbps

4fp express
EU to Brazil

100
Tbps

7fp Landing in
Sines

190
Tbps

5fp Landing in
Fortaleza

112
Tbps

Customer Experience



Rio De Janeiro



São Paulo



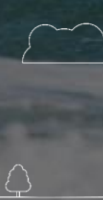
Fortaleza



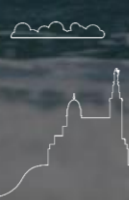
Sines



Lisbon



Madrid



Marseille



CMS Experiment at the LHC, CERN

Data recorded: 2016-Oct-14 09:56:16.733952 GMT

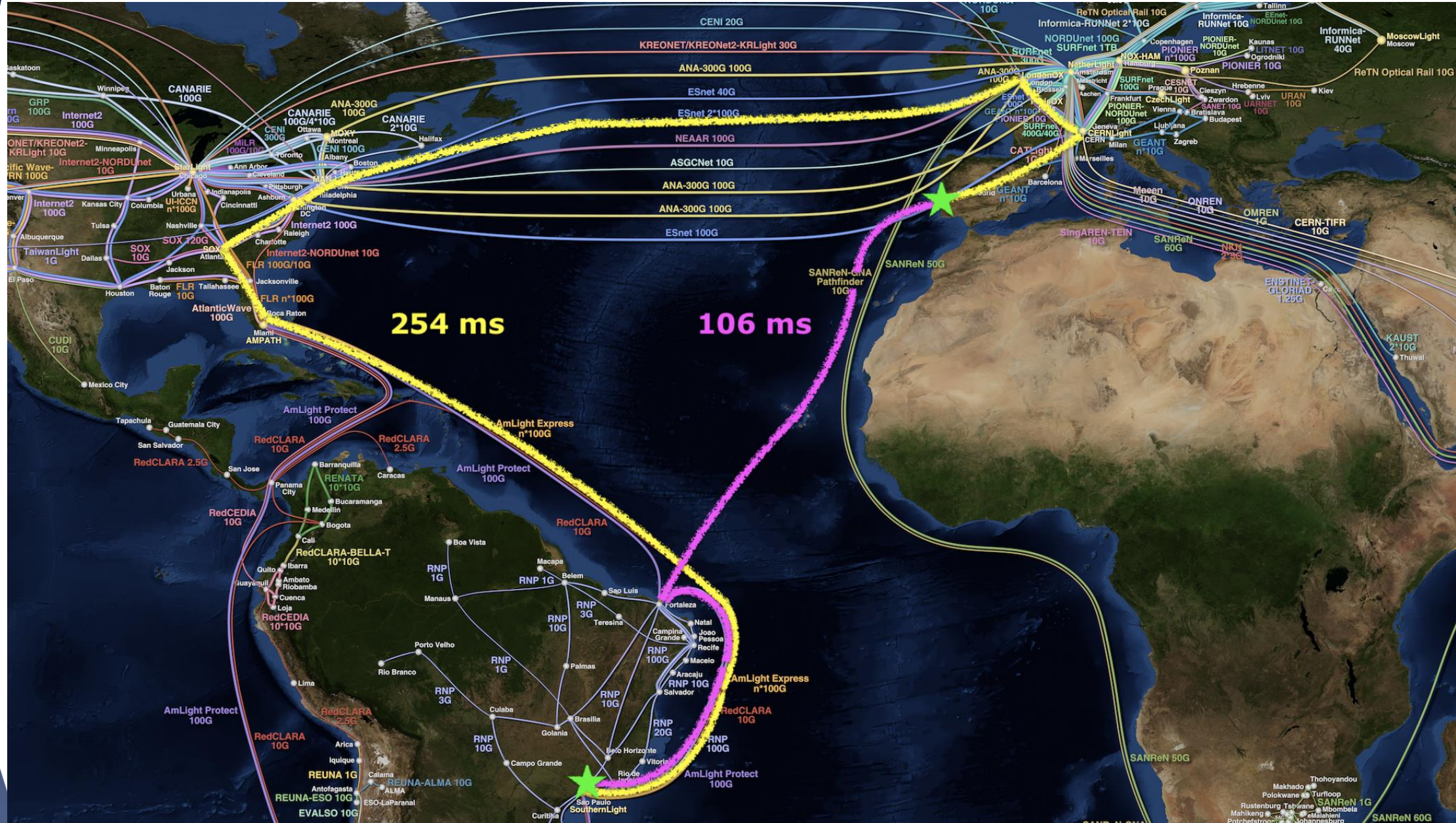
Run / Event / LS: 283171 / 142530805 / 254



A deluge of data

- Proton bunches collide every **25 ns**
- 150 million** sensors delivering data
- 30+ Petabytes** of new data per year
- All data must be **distributed worldwide**

The Academic Experience: UNESP - CERN



Online Comparing Test:

YOUTUBE: BELLA Link Demo - High Energy Physics



Production link (through U.S.)

- RTT from LIP to SPRACE: ~254 ms

```

1 172.16.203.254 (172.16.203.254) 0.437 ms
2 172.16.100.1 (172.16.100.1) 0.346 ms
3 Router63.Lisboa.fccn.pt (193.137.1.233) 0.698 ms
4 Router30.Lisboa.fccn.pt (194.210.6.112) 0.617 ms
5 Router1.Lisboa.fccn.pt (194.210.6.103) 0.752 ms
6 fccn.mx2.lis.pt.geant.net (62.40.124.97) 0.407 ms
7 ae4.mx1.mad.es.geant.net (62.40.98.97) 9.513 ms
8 ae7.mx1.gen.ch.geant.net (62.40.98.67) 44.189 ms
9 ae6.mx1.par.fr.geant.net (62.40.98.183) 36.771 ms
10 ae5.mx1.lon2.uk.geant.net (62.40.98.178) 43.299 ms
11 ae6.mx1.lon.uk.geant.net (62.40.98.36) 44.102 ms
12 internet2-gw.mx1.lon.uk.geant.net (62.40.124.45) 118.094 ms
13 ae-1.4079.rtsw.atla.net.internet2.edu (198.71.45.6) 131.068 ms
14 et-3-0-0.4079.rtsw.jack.net.internet2.edu (162.252.70.43) 136.614
ms
15 198.71.45.189 (198.71.45.189) 148.902 ms
16 ae0-2005.rt04.ce.ampath.net (190.103.185.11) 257.684 ms
17 143-108-254-242.ansp.br (143.108.254.242) 253.750 ms
18 200.136.80.225 (200.136.80.225) 253.616 ms !X

```

Experiment using EllaLink

- RTT from LIP to SPRACE: ~106 ms

```

1 172.16.203.254 (172.16.203.254) 0.382 ms
2 194.210.4.169 (194.210.4.169) 1.162 ms
3 Router30.Lisboa.fccn.pt (194.210.6.108) 0.562 ms
4 Router1.Lisboa.fccn.pt (194.210.6.103) 0.646 ms
5 fccn.mx2.lis.pt.geant.net (62.40.124.97) 0.495 ms
6 redclara-gw.lis.pt.geant.net (62.40.127.151) 62.728 ms
7 for-sao.redclara.net (200.0.204.7) 106.989 ms
8 sprace01.redclara.net (200.0.207.116) 106.452 ms !X

```

Traceroute - from Lisbon to São Paulo

Improved access to European content

Combining Express connectivity with taylor made Peering Services

Improved Internet Experience for the End User

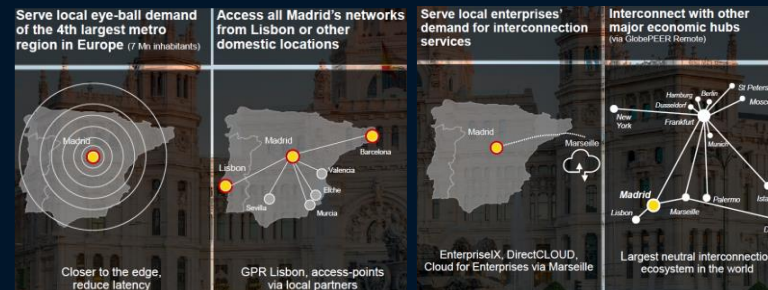
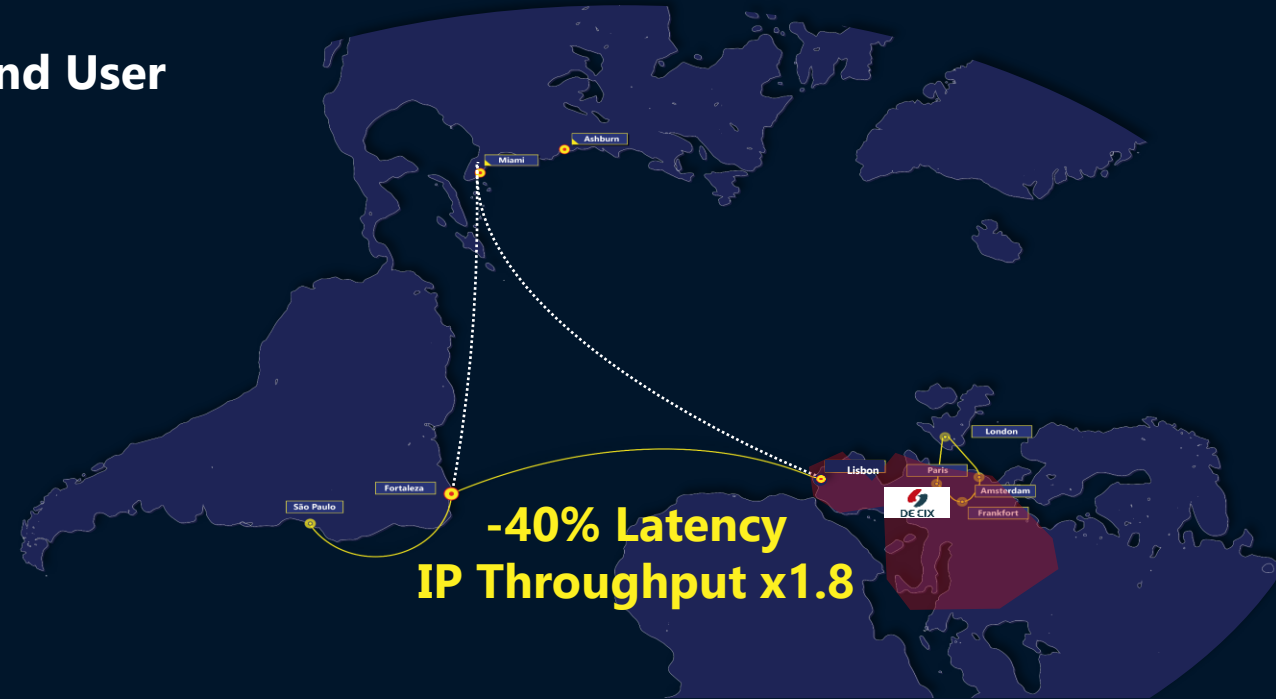
Creation of a new, Robust & optimized intercontinental ecosystem

Designed for remote IP peering access

- 100G direct connection to DE-CIX ecosystem
- from LATAM for Channel partners
- Optimized RTT between Fortaleza to Lisbon

Enter DE-CIX ecosystem in Lisbon or Madrid with only 1 access

- reach 450+ ASNs in Southern Europe
- 2,200+ ASNs at 24 IXs globally
- benefit from unique content, blackholing rules and best-in-class SLA

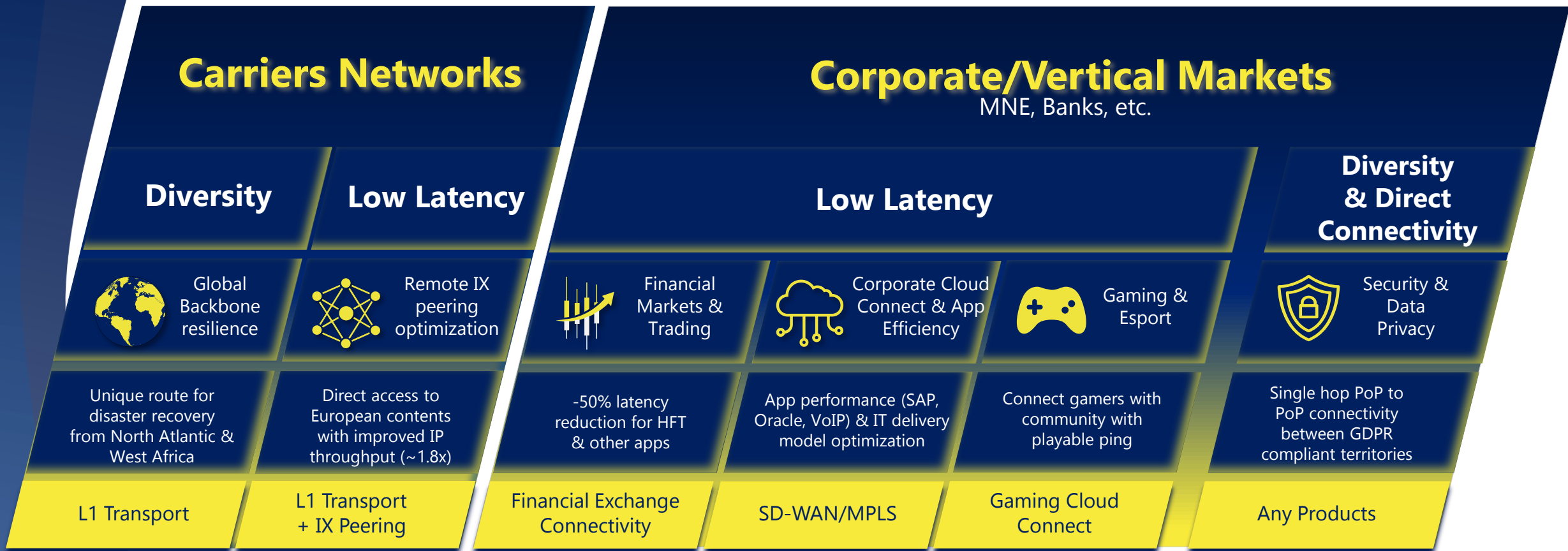


220+ ASNs

660+ Gbps

Madrid is the fastest growing IX in the world and the new heart of the Southern European Interconnection ecosystem offering the largest diversity of content

The EllaLink infrastructure enabling our value proposition

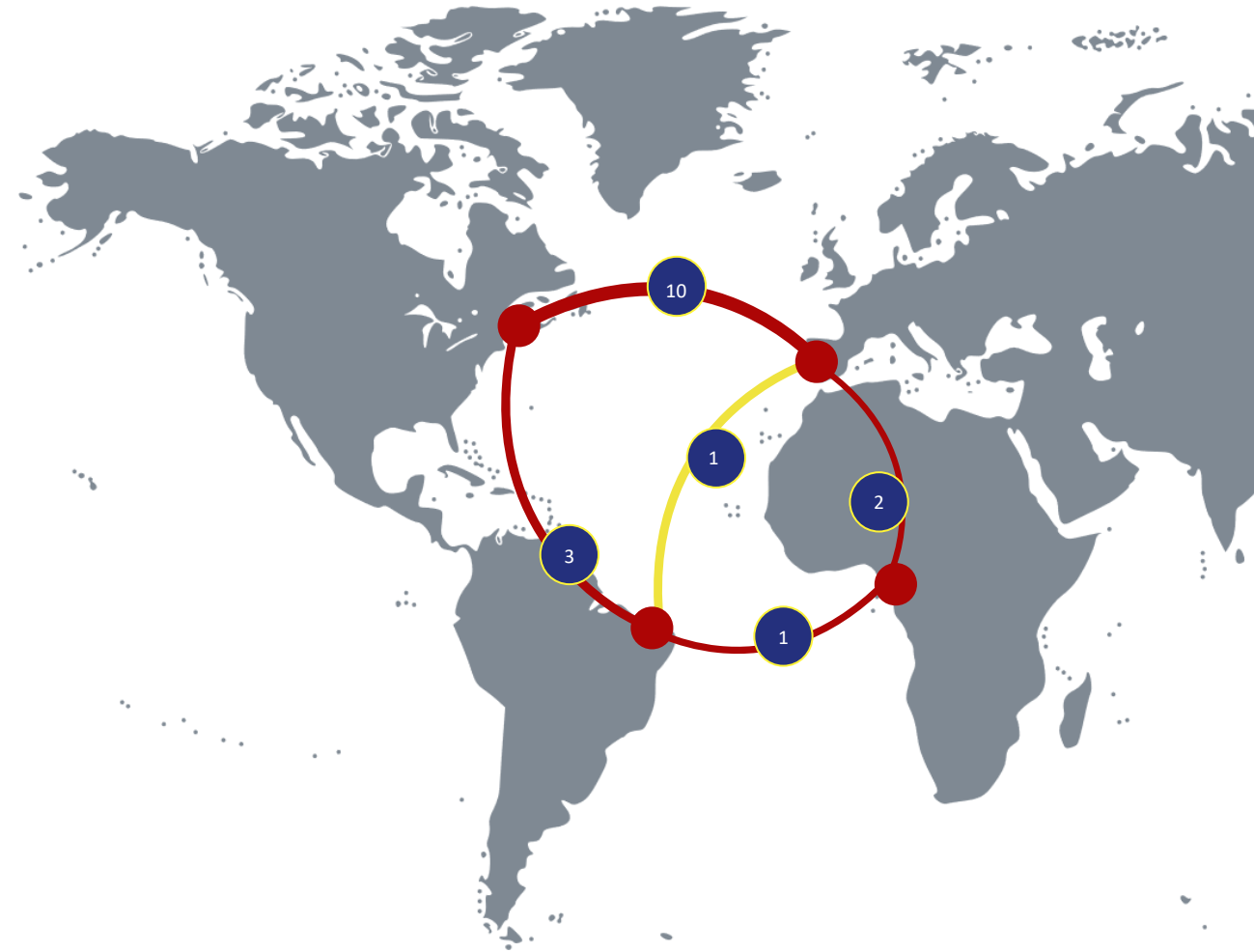


North Atlantic diversity solution for carriers

The EllaLink cable is currently the best option for diversifying routes when we talk about data exchange between Europe with the Americas.

With capacity of 100Tbps, EllaLink subsea cable is a unique and direct high-capacity cable from Europe to South America with 4 Fibre Pairs crossing the Atlantic directly from Sines, Portugal to Fortaleza, Brazil.

It is necessary to increase the number of alternative routes for data traffic in a global network, for redundancy.



Sines ecosystem



The New Atlantic Hub In Portugal

+240 000M² OF AVAILABLE LANDS
Ready to be built on, close to the beach landing point

STRATEGIC WORLDWIDE POSITION
A gateway to Latin America and the European market

LOCAL AWARENESS & SUPPORT FOR SUBSEA & DC PROJECTS

ROBUST SUBSEA LANDING INFRASTRUCTURE
HD0 bore pipes providing secure & direct access from the sea to the Data Center Park

READILY AVAILABLE POWER LINES 15KV TO 400KV

GREEN POWER IN SIGHT
Biofuels, wind and solar power
2 x 50MW solar plants under development

DIRECT CONNECTIVITY WITHIN EUROPE
Via ready and open diverse routes with very high availability

INTERCONTINENTAL CONNECTIVITY
The shortest route to LATAM and North Africa

DIVERSE AND REDUNDANT FIBER ROUTES
To Lisboa & Madrid

OPEN | SECURE | DIVERSE



SINES Data Center Campus

Green Giant Hyperscale Ecosystem

SINES Project powered by 100% 100% Green Energy

Great subsea connectivity, combined with a high capillary and redundant terrestrial connectivity network, allows "Green Giants" to take advantage of

abundant and cheaper **land** and proximity of **renewable power**, whilst always guarantying great **connectivity** to major European hubs.

- Strategic location
- Secure and resilient site
- Modular and scalable
- Supportive local stakeholders
- 100% green energy
- Efficient cooling
- Highly connected

Upcoming Projects



French Guiana branch project

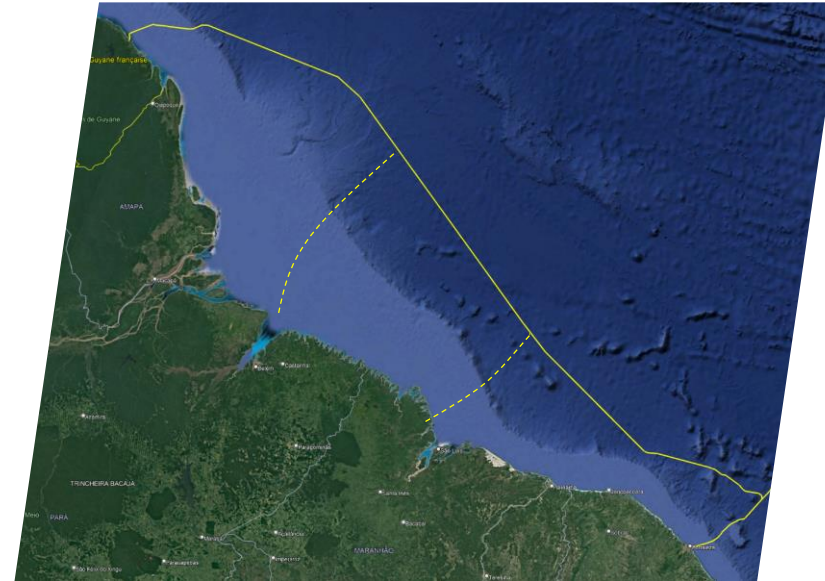


French Guiana is an overseas French territory and the largest outermost region of the European Union hosting the highly strategic spaceport of Kourou.

It currently only relies on infrastructures going through North America and is well connected to the other European territories in the Caribbean region.

This project aims at directly connect European territories with any 3rd party territory, reinforcing the sovereignty of the digital development of the entire Caribbean region and improve the security and resilience of the Spaceport

Drivers: Sovereignty, Security, Redundancy, Scientific excellence and social & economic benefits



Ariane 5 lifting off from the Guiana Space Centre in Kourou



CEF Global Gateway program

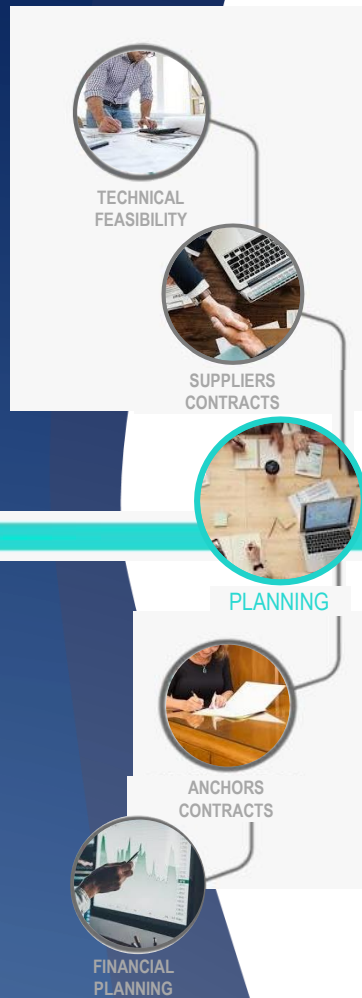
EllaLink solution

- Turnkey project to design and build the subsea branches from the existing trunk to Cayenne (2100 km)
- Direct point to point connection from French Guiana to Portugal allowing the whole Caribbean region to directly connect with continental Europe
- Potential branches to connect Northern Brazil cities of Sao Luis & Belem
- Project planned RFS
- System operation and maintenance managed by EllaLink for the life of the system



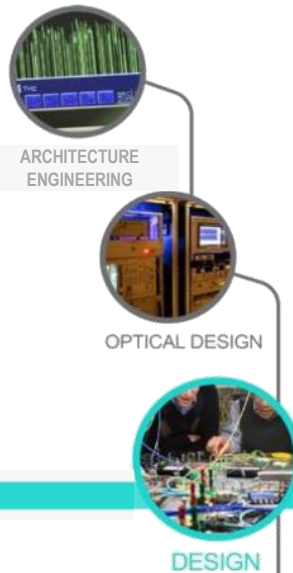
Main aspects of a subsea cable system project

Pre construction

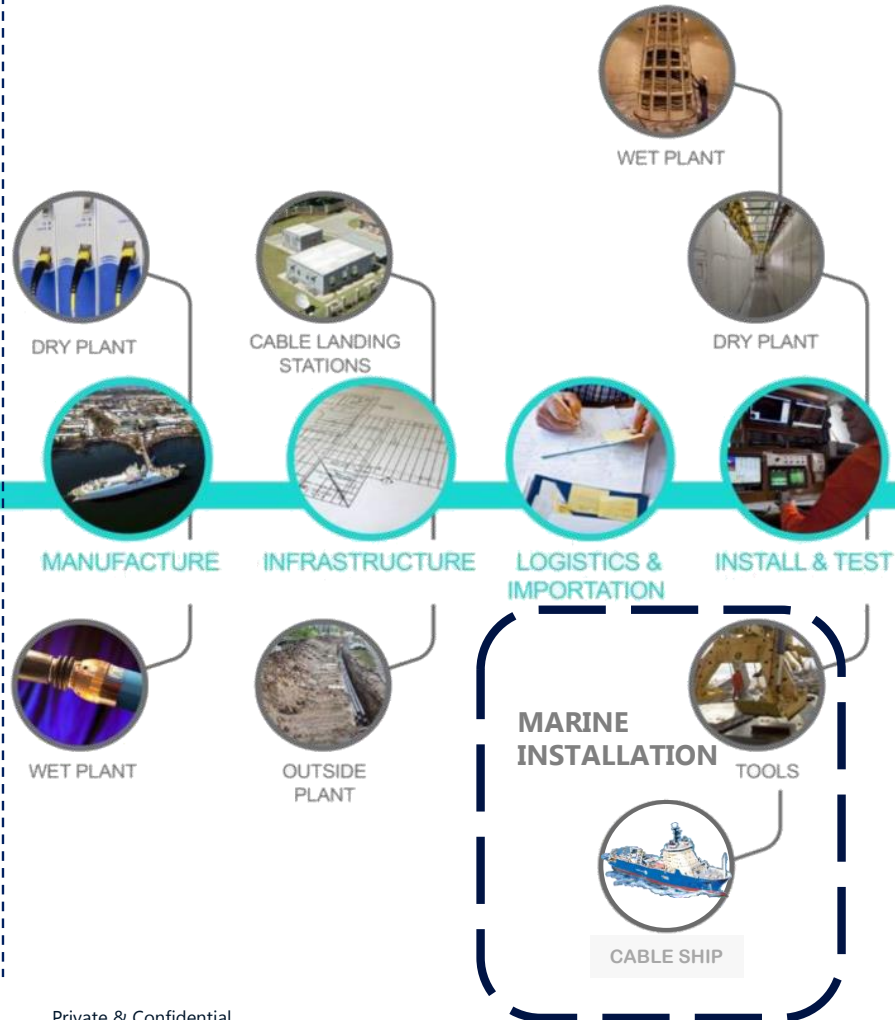


Construction project: typically from 12 to 24 months

Design phase



Deployment phase



Operation life 25 years



EllaLink

Thank you - Gracias - Merci
Obrigado - 谢谢你 - اشكر



Ella.Link



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